

CLAIMS

1. Charges reading circuit including charges storage material (Tc), charges addressing material (Ta)
5 and charges/voltage conversion material (Aj) including a conversion capacity, addressing material enabling control of the injection in the conversion material of charges stored in the storage material characterised by the fact that it includes calibration material (Tccal,
10 Tacal, I1, Ccal) to deliver information (Vs) representative of the charges stored in the storage material and material (K, I2) to select the conversion capacity from the said information.
- 15 2. Charges reading circuit according to claim 1 characterised by the fact that the calibration material includes:
- calibration storage material (Tccal) to store a fraction of the charges stored in the storage material
20 material
 - calibration addressing material (Tacal) to control the injection in the conversion material (Aj) from the fraction of charges stored in the calibration stored material and
 - 25 - a calibration capacity (Ccal) to convert the addressed charges from the calibration storage material (Tccal) into a calibration voltage and by the fact that the material to select the conversion capacity from the said information
30 includes:

- a comparator (K) to deliver a comparison signal (Slog) following the comparison of the calibration voltage with a threshold voltage (Vthreshold) and
- at least on switch (I2) controlled by the comparison signal (Slog) to connect at least one supplementary capacity (C) in parallel with the calibration capacity (Ccal) if the calibration voltage is higher than the threshold voltage such that the conversion capacity is made up of the calibration capacity and the supplementary capacity.

3. Charges reading circuit according to claim 2 characterised by the fact that the conversion material includes a differential amplifier (AC) which has a reverse entry and an exit the calibration capacity (Ccal) which was mounted between the reverse entry and the differential amplifier exit (AC).

4. Charges reading circuit according to claim 3 characterised by the fact that it contains control material (Mj) of a quiescent current of the differential amplifier (AC) controlled by the comparison signal.

5. Charges reading circuit derived from the detection of radiation by a matrix of N lines by M columns of elementary detectors (ij), the reading device including a total of N x M elementary points (Pij) and charges/voltage conversion points (Aj) each elementary point being linked to an elementary detector

and including storage material (Tc) to store the charges detected by the elementary detector to which it is linked and addressing material (Ta) to control the injection in the conversion material the charges stored in the stored material, charges stored in the storage material, the conversion material including a conversion capacity characterised by the fact that an elementary point includes calibration storage material (Tccal) to store a fraction of the stored charges in the storage material and calibration addressing material (Tcal) to control the injection in the conversion material, charges stored in the calibration storage material and in the fact that the conversion material (Aj) includes a first calibration capacity (Ccal) to convert the addressed charges from the calibration storage material (Tccal) into a calibration voltage and material to select the conversion capacity from the calibration voltage.

6. Device according to claim 5, characterised by the fact that the material to select the conversion capacity includes a comparator (K) to deliver a comparison signal (Slog) following the comparison of the calibration voltage with a threshold (Vthreshold) and at least one switch (I2) controlled by the comparison signal to connect a supplementary capacity in parallel with the calibration capacity if the calibration voltage is higher than the threshold voltage such that the conversion capacity is made up of the calibration capacity and the supplementary capacity.

7. Charge reading device according to claim 6 characterised by the fact that the conversion (Aj) includes a differential amplifier (AC) with a reverse entry and an exit, the calibration capacity (Ccal) being mounted between the reverse entry and exit.

8. Charge reading device according to claim 7 characterised by the fact that it contains control material (Mj) with a quiescent current of the differential amplifier (AC).

9. Charge reading process including a charges storage stage, a charges addressing stage and a charges/voltage conversion stage to convert a charges reading in a conversion voltage, the addressing stage enabling control of the injection in charges/voltage conversion (Aj) including a conversion capacity (Ccal) charges stored during the storage stage characterised by the fact that it includes a calibration stage to deliver representative information of the stored charges during the storage stage and a selection stage of the conversion capacity from the said information.

10. Charges reading process according to claim 9 characterised by the fact that the calibration stage includes a calibration storage stage to stock a fraction of charges stored during the storage stage a calibration addressing stage to control the injection in the conversion material (Aj), of the fraction of charges and a conversion stage in a calibration voltage

with the help of a calibration capacity (C_{cal}), of the fraction of charges injected in the conversion material and in the fact that that the selection stage of the conversion capacity includes a comparison stage to
5 deliver comparison signal following the comparison of the calibration voltage with a threshold voltage and a control stage of at least one switch (I_2) to connect a supplementary capacity (C) in parallel of the calibration capacity if the calibration voltage is
10 higher than the threshold voltage such that the conversion capacity is constituted from the calibration capacity and of the supplementary capacity.

11. Charges reading process according to claim 10
15 characterised by the fact that the conversion material including a differential amplifier (AC) includes a control stage of a quiescent current of the differential amplifier controlled by the comparison signal.

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12. Charges reading process according to any of the claims 10 or 11 characterised by the fact that it includes a stage to measure the value of a charge read from the conversion voltage measured at the edges of
25 the conversion capacity and of the comparison signal ($Slog$).

13. Charges reading process derived from the detection of radiation by a matrix of N lines by M columns of
30 elementary detectors the process including a reading stage of charges detected by each elementary detector

characterised by the fact that the reading stage of charges detected by each elementary detector is carried out by a process according to claim 9.